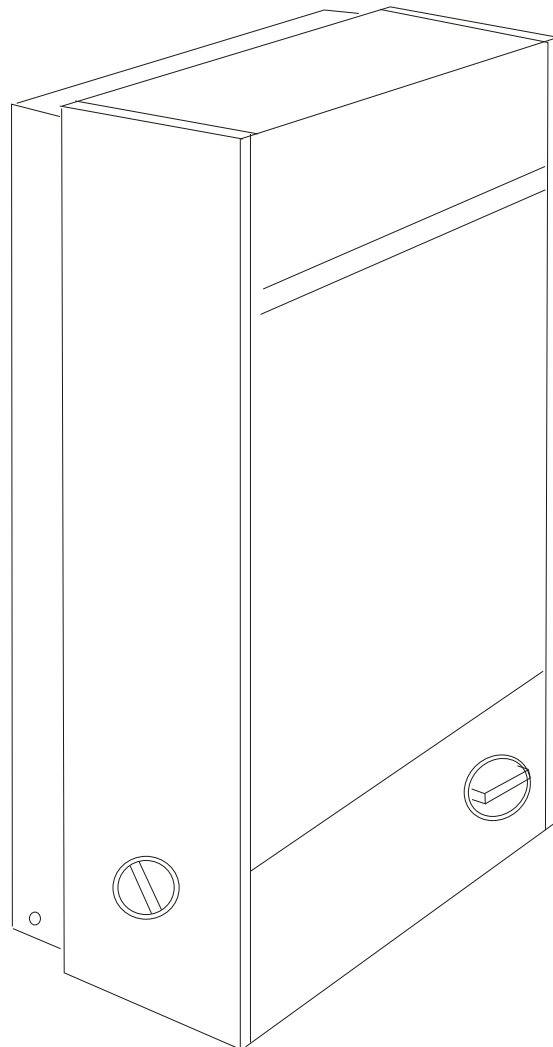


THE HOTTEST NAME IN HEATING

Bantam Ecotherm



Instructions for Installation and Servicing

This is a Cat I_{2H} appliance - for use on G20 @ 20mbar in GB & IE

Please leave these instructions with the User

DESCRIPTION

The Bantam Ecotherm is a room sealed gas wall heater which circulates warm air by convection. It is manually ignited by a combined piezo igniter and gas tap which has OFF, PILOT and ON positions. The setting of the thermostat and the room temperature determine if the main burner lights when the gas tap is turned to ON, after lighting the pilot. A thermoelectric F.F.D. is fitted. Three different lengths of flue are available to enable the heater to be fitted on walls from 75mm (3in) to 500mm (20in) thick. The flues have eccentric ducts made from aluminium coated steel sheet and a one piece terminal made from weather resistant aluminium. The heat exchanger is assembled from pressings made from either aluminium coated or heat resistant sheet steel. The main burner is an aerated ribbon type and the pilot burner is a target type. The case is made from stoved painted mild steel.

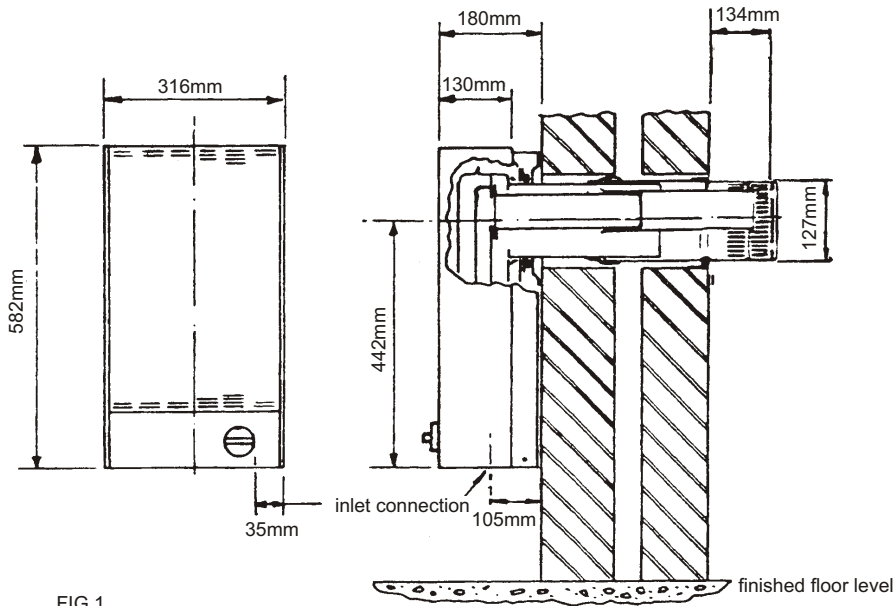


FIG 1

SPECIFICATION

Declaration of Efficiency

The efficiency of this appliance has been measured as specified in BS EN 613:2001 and the result is 78.7%. The gross calorific value of the fuel has been used for this efficiency calculation. The test data from which it has been calculated has been certified by Notified Body No.0087. The efficiency value may be used in the UK Government's Standard Assessment Procedure (SAP) for energy rating of dwellings.

The above exceeds the minimum requirement of 72%.

- Height: 582mm x Width: 316mm x Depth: 180mm
- Weight: 14.2kg Gross: 12kg Nett
- Gas inlet: Rc1/4 (1/4 in BSP internal).
- Gas supply: Natural gas (G20) at 20mbar
- INPUT(gross): 2.94kW
- Main injector: Robinson Willey N16
- Pilot Injector: S.I.T. No.34
- Pilot rate is non adjustable.
- The spark gap: 3-4mm. The gap is set by design and is not adjustable.
- Burner aeration: Non adjustable. Flame should be blue.
- Flues:
 - Short for walls 75mm (3in) to 195mm (7.7in) Part No. 991429
 - Standard for walls 195mm (7.7in) to 345mm (13.6in) Part No. 991428
 - Long for walls 345mm (13.6in) to 500mm (20in) Part No. 991427
- Optional extras:
 - Kit for combustible walls: Part No. 994530
 - Flue Terminal guard: Part No. 998793
 - Arthritic Handle: Part No. 997259

Burner pressure (hot): 19.0+/-1mbar
 OUTPUT 2.11 kW

PART 1. INSTALLATION

1. CONDITIONS OF INSTALLATION

This appliance is for use on natural gas only.

It is the law that all gas appliances are installed by a competent person (a Gas Safe registered Engineer) in accordance with the Gas Safety (Installation and Use) Regulations. Failure to install appliances correctly could lead to prosecution. It is in your own interests and that of safety to comply with the law.

The installation must also be in accordance with these installation instructions, all the relevant parts of the local and National Building Regulations and all relevant recommendations of the following British Standard, and "in accordance with the rules in force".

BS.5871:Part 1, BS.5440:Part 1, BS.5440:Part 2, & BS.6891

2. PACKAGING

The heater is packed in a carton together with the following items:

- (1) Standard Flue assembly, complete with sealing tape.
- (2) Gasket pack comprising flue and air duct gaskets and flue sealing gasket.
- (3) Flue sealing ring.
- (4) Flue cover plate.

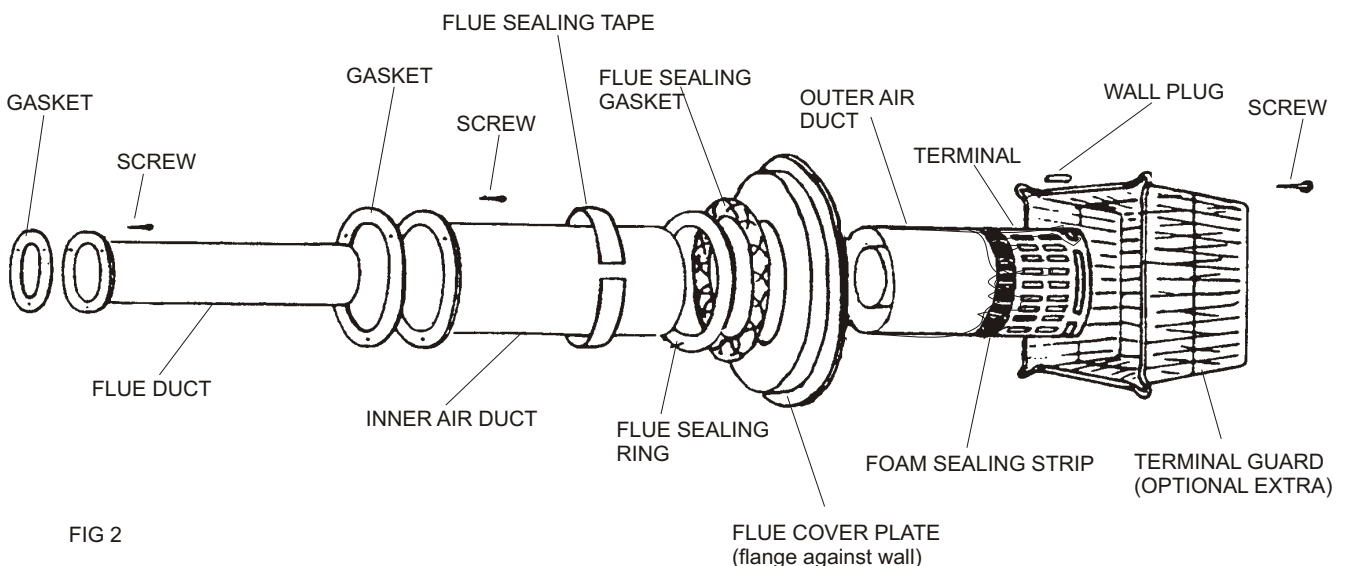
See Fig. 2 for items 1 to 4.

- (5) Thermostat and Control Knobs.

- (6) Pack of fittings comprising:

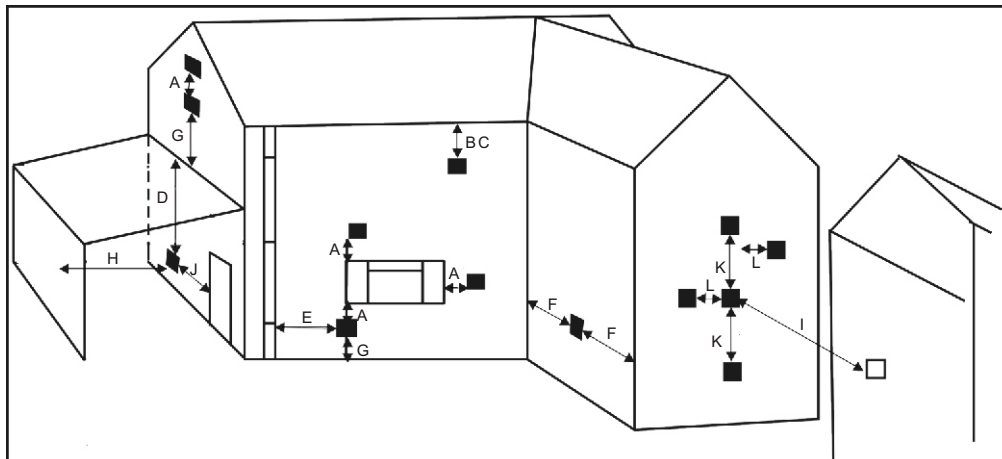
2 off - Top spacing brackets	999255	3 off - Wall fixing screws (2in wood)	810500
1 off - Bottom spacing bracket	999256	3 off - Wall plugs	810813
3 off - M5 x12mm screws	810510	2 off - No.6 x 8mm self tap screws	810776
3 off - M5 nuts	810552	6 off - M5 plain washers	810446
3 off - M5 Lock washers	810319	6 off - M4 x 10 Taptite screws	810327

- (7) These Instructions and a template, representing the heater full size, indicating the position of the air inlet duct and fixing screw positions (see Fig. 3).



3. LOCATION OF HEATER

The guidance below should be followed, to comply with the terminal location specified by:-
B.S. 5440-1:2000 (Specification for installation and maintenance of flues).



TERMINAL POSITION	MINIMUM DISTANCE
A - Directly below, above or to the side of an openable window or other opening e.g. air brick	300mm
B - Below gutters, soil pipes or drain pipes	300mm
C - Below eaves	300mm
D - Below balconies or car port roof	600mm
E - From vertical soil pipes or drain pipes	300mm
F - From internal or external corners	600mm
G - Above ground, roof or balcony level	300mm
H - From a surface facing a terminal	600mm
I - From a terminal facing a terminal	600mm
J - From an opening in the car port (e.g. door, window) into dwelling	1200mm
K - Vertically from a terminal on the same wall	1500mm
L - Horizontally from a terminal on the same wall	300mm

Note that in England and Wales the Building Regulations require a terminal guard to be fitted if the terminal is less than 2m from the level of any ground, balcony, flat roof or place to which any person has access and which adjoins the wall in which the outlet is situated. A suitable guard is available from Robinson Willey Ltd.

The Part No. of the guard is 994371.

In Scotland, although the Building Standards (Scotland) do not require a terminal guard to be fitted, the fitting of a guard as detailed above is considered good practice.

Inside:

1. Allow 100mm (4in) access at each side of the heater and a minimum distance of 115mm (4.5in) beneath the heater.

2. Curtains must be 150mm (6in) clear at the top of the heater and 50mm (2in) at the sides.

3. A good position for fitting the heater is below a window in order to minimize the effect of high heat losses and cold draughts usually associated with glazed areas and to utilize wall space not normally occupied.

4. The distance between a shelf fitted above the heater and the top of the heater must not be less than 150mm (6in). The shelf must not project more than 150mm (6in.) from the wall.

5. Check the wall thicknesses. Three different sizes of flue are available for wall thicknesses up to 500mm (20in.) as shown below:

The standard flue is packed with the heater, the other lengths must be ordered specially (see specification-page 2)

4. PREPARATION OF WALL

4.1 INSTALLATION ON NORMAL BRICK WALL

1. Open the carton and remove the contents, putting them to one side to avoid damage. The heater should be placed carefully on the floor, avoid damaging the thermostat dial.

2. Using the template supplied, place it against the wall. Ensure that the top is level and that the line showing the bottom of the heater is at least 115mm from the finished floor level, allowing for carpets etc. Check that the clearances specified on Page 4 are complied with. Mark the positions of the flue and the three fixing holes (see Fig. 3) and remove the template.

3. Cut a hole 135mm dia. for the air inlet duct, making sure that it is straight and level, making good the wall at both ends if necessary.

4. Drill the three fixing holes to a minimum depth of 57mm using a 6mm diameter masonry drill and fit the wall plugs into the holes.

5. Remove any combustible wall cladding as shown in Fig. 3.

6. Fit the two upper fixing brackets to the wall using the woodscrews provided leaving at least 245mm between them, as shown in Fig. 3.

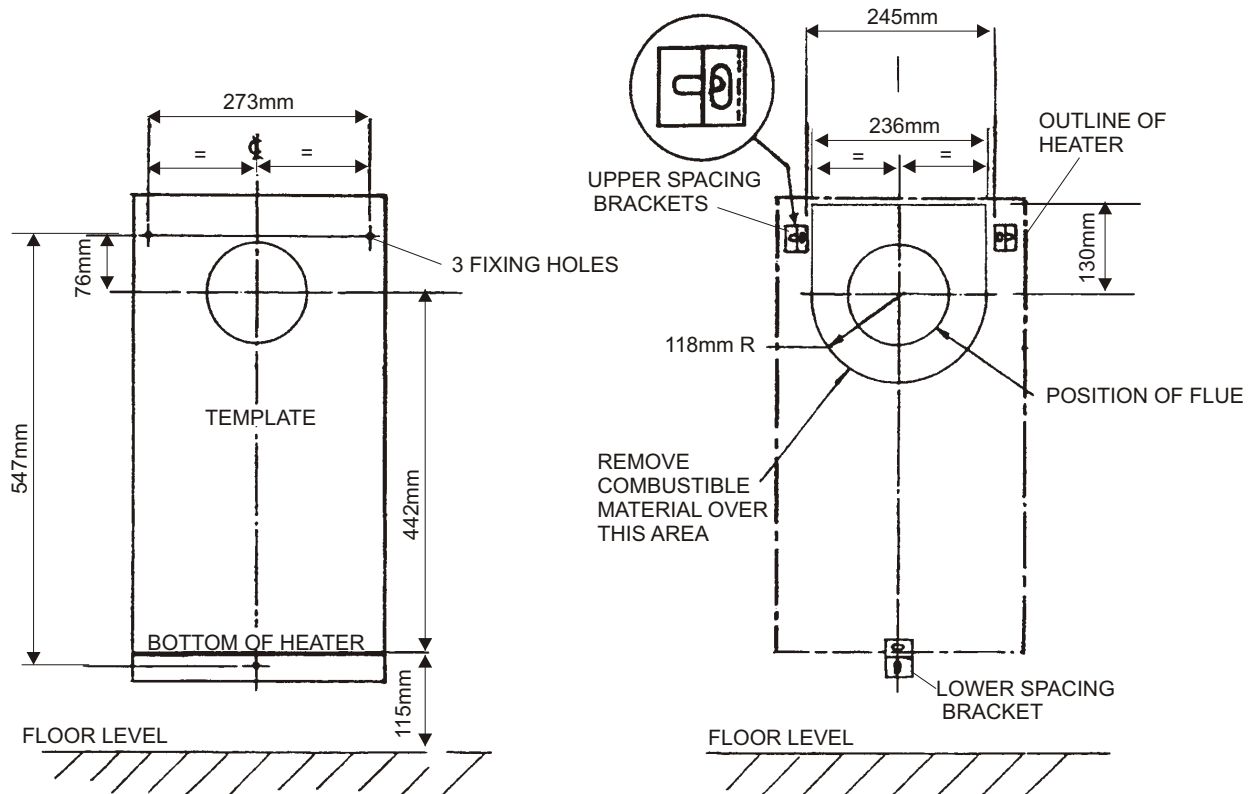


Fig 3

4.2 INSTALLATION OF HEATER ON COMBUSTIBLE WALLS

Note: The combustible wall kit (Part No. 994530) is required. It is only suitable for walls on which the combustible part is not more than 207mm (8in) thick, measured from the inside face of the wall.

Reference should be made to BS 5871, the Building Regulations and, for walls of timber framed/brick construction, The Institute of Gas Engineers Utilization Procedure *IGE/UP/7 GAS INSTALLATIONS IN TIMBER FRAME BUILDINGS*.

Proceed as instructed in Section 4.1 except for the following:

1. Remove the combustible material in the area shown in Fig. 3. Replace it with non-combustible material such as Superlux Board, adding whatever support is necessary to make a flush surface.

2. Cut the hole for the flue 178mm diameter through the wall. If the outer section of the wall is non combustible, brick for instance, the hole in that part is as specified in Section 4.1.3.

3. Measure the thickness of the combustible section of the wall. Cut the wall liner to this length, cutting at the end without the fixing brackets. Fit the liner to the sealing plate using the screws provided. Fit the assembly to the inside face of the wall with the top edge of the plate horizontal. It does not need to be fixed to the wall as it is held in place by the heater.

4. Fit the wall plate to the outer face of the wall, concentrically with the liner, using the screws and wallplugs provided. It is recommended that the plate is sealed to the wall, using a mastic compound, to make the installation water-tight.

If the outer section of the wall is non-combustible, the wall plate is not required.

5 When determining the flue length, measure the wall thickness from the face of the wallplate

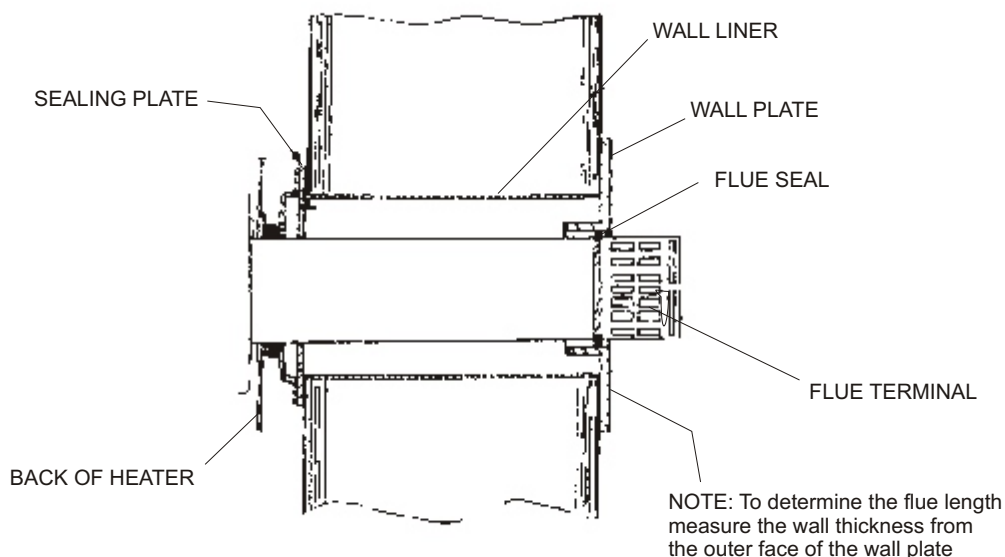


Fig 4

5. INSTALLATION OF HEATER

1. Lift the bottom of the case slightly to clear the fixing nuts and slide it upwards to free it completely. Put the case to one side. Remove the two screws from the dressing strip and put that to one side also. Place the heater face down on the packing (Fig. 5.1) as shown in Fig. 5.2. Ensure that the gas cock spindle is clear of any obstruction and the floor. Fit the lower spacing bracket to the rear face of the backplate in the position shown in Fig. 3, using M5 screw, nut, lock and plain washer.
2. Fit the flue and air ducts to the back of the heater using the gaskets and screws provided. This operation is made easier by using the screws to tap the holes before assembly. The flanges of the ducts are marked 'TOP' to indicate the way in which the ducts are to be fitted. The air duct also has a hole at the opposite end to the flange. NOTE: The flue and air ducts do not need adjustment unless the short flue assembly is being fitted. In this case measure the wall thickness, then SUBTRACT the measurement from 195mm(7.7in) to give the length 'B' shown in Fig. 6. Cut this length from the plain ends of both flue and inner air ducts.
3. Adjust the flue to length. First measure the wall thickness and add 184mm to give the overall length of flue 'A'. Fit the terminal assembly to the ducts already fitted to the heater. The top of the assembly is marked 'TOP'. Set the overall length of the flue to the dimension 'A' (Fig. 6). Drill 2.7mm diameter for the fixing screws but do not fit them yet. Remove the flue terminal.
4. Slide the sealing ring, sealing gasket and cover plate over the air duct as shown in Fig. 2. Refit the terminal and secure it with the screws provided. Seal the joint using the self adhesive tape provided.
5. Remove the tape from the foam sealing strip on the terminal. Do not remove the tape before the heater is ready to install as the foam strip commences to expand once the tape is removed. The rate of expansion however, is low and there will be adequate time to install the heater, after which the foam strip will continue to expand and fill the gap between the flue and the wall. If, for any reason the sealing strip has already expanded before the heater is installed, it can simply be compressed by hand until it is flush with the surface of the flue.
6. Place the heater in position on the wall and secure it in place, using M5 screws, nuts, lock and plain washers in the top spacing brackets and a 50mm (2in) wood screw in the lower Bracket.
7. If a terminal guard is required, position it on the wall concentric with the flue and mark the positions of the four fixings. Remove the guard and drill four holes 38mm (1.5in) deep using a 6mm masonry drill. Fit wall plugs and screw the guard to the wall.

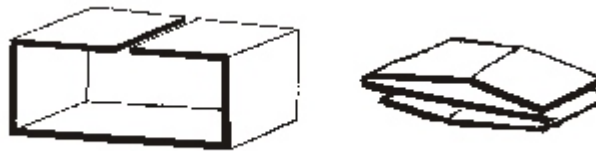


Fig 5.1



Fig 5.2

Appliance face down making sure gas cock spindle is clear

For short flues cut the length 'B' from both flue and inner air ducts

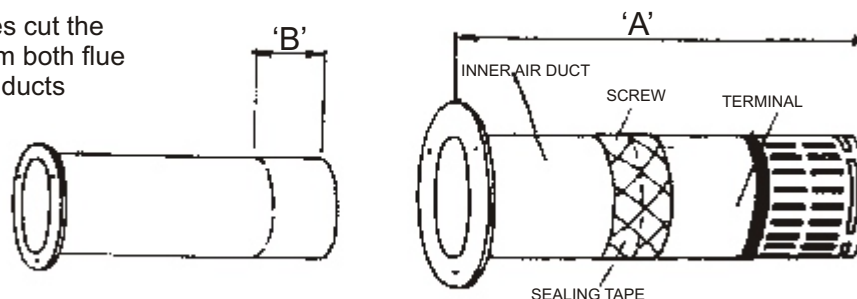


Fig 6

6. CONNECTION TO GAS SUPPLY

1. Extend the gas supply to a convenient point beneath the heater and connect it to the inlet of the gas control at the right hand side of the heater.
2. A union service tap must be fitted adjacent to the heater to facilitate servicing (for neatness, fit it beneath the heater where possible).

7. COMMISSIONING THE HEATER

1. Turn on the gas supply and check for gas soundness using soap solution or leak detection Fluid.
2. Remove the pressure test point screw (located at the bottom left hand side of the heat Exchanger) and fit a pressure gauge. Temporarily fit the control and thermostat knobs.
3. Push in the control knob and turn it anti-clockwise to the PILOT position. Check, by looking in the window on the front of the heat exchanger, that a spark is visible at the pilot and that the pilot lights.
4. If the pilot does not light, release the pressure on the control knob slightly and turn it back to the OFF position. Repeat the procedure of 3 until the pilot does light then maintain the pressure on the control knob for 10 seconds to energise the flame failure device.
5. Release the pressure on the control knob slightly and turn it to the ON position. After a few minutes, check that the gas pressure is as specification - see page 2. If not, check the meter pressure.
NOTE: The thermostat must be set to maximum (setting 6) during this check, and the room should not be hot.
6. Turn the heater off, wait one minute then turn the gas tap directly to ON. If the pressure gauge reads zero then all is well and the FFD is functioning. Turn the heater off, disconnect the gauge, replace the test point screw and check the gas soundness of the screw. Remove both the control and thermostat knobs.
7. Refit the case as follows. Hold the case with the top slightly inclined towards the heater, lower it onto the heater so that the rear top flange engages the top of the back panel. Lower the bottom of the case and fasten it with the retaining screws. Refit the dressing strip, flanged edge to front, and replace the control and thermostat knobs.
8. Check that the heater lights, instruct the consumer in its operation and give him the User's Instructions. Explain that the burner will only light when the control knob is turned to 'ON' if the room is cooler than the thermostat setting. Inform him also that, in the interests of safety and efficiency, the appliance should be serviced yearly by a competent person (a Gas Safe registered Engineer).

PART 2 - SERVICING

INTRODUCTION AND CASE REMOVAL

Before carrying out any servicing, turn off the gas supply at the service tap and remove the case. To do this, pull off the control and thermostat knobs and remove the two case fixing screws which are located underneath the heater at the back of the side panels. Pull the bottom of the case forward slightly to clear the case fixing brackets and lift it away from the heater. The case is replaced in the reverse manner.

All parts of the heater are now readily accessible and can be removed by carrying out the instructions in the following pages.

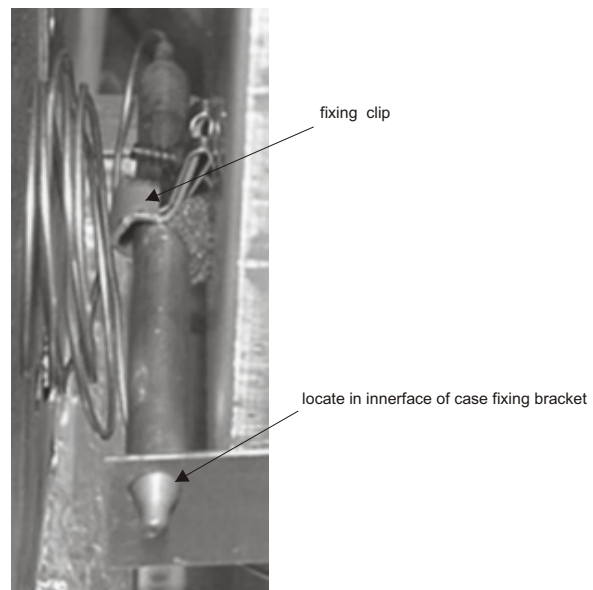
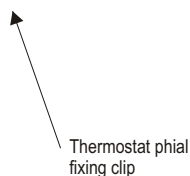
IMPORTANT. After carrying out any servicing on a gas carrying component always test for gas soundness after the work has been completed.

1. GAS CONTROL ASSEMBLY

1. On the control itself, disconnect the gas supply connection, release the tubing nuts securing the pilot and burner supply tubes, disconnect and withdraw the thermocouple.
2. Disconnect the spark electrode lead and unwind it from the pilot tube.
3. Release the tubing nut securing the pilot supply tube to the pilot assembly and remove the supply tube from the heater. Put the tube to one side taking care not to loose the injector from the pilot assembly or the gauze filter from the pilot outlet.
4. Finally unscrew the four screws holding the bracket to the base of the heat exchanger and withdraw the complete assembly.
5. Replace in reverse order, ensuring the gauze filter is fitted. Wind the piezo lead around the pilot tube to prevent it from being fouled by the case.

2. THERMOSTAT CONTROL

1. Slacken the tubing nuts at the inlet and outlet of the thermostat body.
2. Slide the thermostat phial out of the case fixing bracket behind the back panel at the lower L.H. corner, pull down the r.h. end and slide it out of it's locating clip.
3. Disconnect the gas supply tube at the control tap, and unscrew the two injector mounting screws at the l.h. side of the heater.
4. Unscrew the two screws fixing the thermostat mounting bracket to the back flange of the heater, and slide the whole assembly out to the left and forward when the injector is clear of the heat exchanger (retain the sealing gasket), taking care not to damage the trailing thermostat phial.
5. Noting the orientation of the thermostat in it's bracket, remove (one fixing nut) and fit the replacement. Transfer the two tubes to the new thermostat (do not fully tighten).
7. Feed the assembly back into the heater, taking care to engage the injector housing (complete with it's sealing gasket) and the supply tube into the gas control. Re-fit the injector holder fixing screws and tighten the supply tube compression nut at the gas tap.
8. Re-fit the mounting bracket fixing screws, and tighten the tubing nuts at the inlet and outlet of the thermostat.
9. Re-fit the thermostat phial, in reverse order of removal. Do not uncoil more than is required to locate the phial and tidy the coils after locating the phial.



Phial location between back panel and wall, lower L.H. side of heater

3. THERMOCOUPLE

- 1 Release the tubing nuts on the copper thermocouple phial at the rear of the control and at the pilot assembly.
2. Remove the thermocouple, fit the new one and refit the two tubing nuts. Make sure that the thermocouple is pushed fully home into the pilot assembly before tightening the nut.

4. PILOT ASSEMBLY

- 1 .Disconnect the electrode lead from the spark electrode and unwind it from the pilot tube.
2. Release the tubing nuts at each end of the pilot supply tube and remove the tube taking care not to loose the injector from the pilot assembly or the gauze filter from the pilot outlet.
3. Release the tubing nuts and remove the thermocouple. Release the tubing nut and remove the Electrode.
4. Remove the four screws from the pilot assembly and withdraw the assembly complete with gasket. It may be necessary to twist the pilot assembly in order to free it completely.
5. Refit the pilot assembly, pilot supply tube, (ensuring the gauze filter is fitted) electrode and thermocouple. Reconnect the electrode lead and wind the piezo lead round the pilot tube to prevent it fro being fouled by the case. It should not be necessary to fit a new gasket. Make sure that the thermocouple is pushed fully home into the pilot assembly before tightening the nut.

5. PILOT INJECTOR

- 1 .Disconnect the electrode lead from the spark electrode and unwind it from the pilot tube.
2. Release the tubing nut at the pilot assembly, remove the pilot supply tube from the burner and remove the injector which is held captive by the olive.
3. Replace injector and tubing nut. Reconnect the electrode lead and wind the piezo lead round the pilot tube to prevent it from being fouled by the case.
4. After reassembly ensure all joints in the pilot supply are gas tight.

6. PILOT ELECTRODE

1. Release the tubing nut and remove the thermocouple from the pilot assembly.
2. Disconnect the electrode lead, unscrew the tubing nut and remove the electrode.
3. Replace the electrode and thermocouple taking care not to over tighten the gland nut.

7. MAIN BURNER INJECTOR

Release the tubing nut at the thermostat outlet supply tube, remove the two screws securing it to the heat exchanger and withdraw the tube. Unscrew the injector from the end of the tube, inspect and clean or replace as necessary. Replace in the reverse order. It should not be necessary to replace the gasket.

8. MAIN BURNER

Note: Three different burners can be fitted to this heater; all are of the aerated type.
Aeromatic type 181513037: this burner has a box section and raised round flame ports with gauze beneath.
Bray type AB 16920: this burner has a box section and slotted flame ports.
S.I.T. type 0083606: this burner has an oval section and slotted flame ports.

- 1 .Release the six screws securing the cover plate and remove the cover plate and gasket (taking care not to damage the gasket).
2. Release the four screws and washers securing the burner to the left hand side of the heat exchanger.
3. For Aeromatic and Bray burners, move the burner fully to the right and lift it up at the left hand end to clear the burner location bracket and withdraw it from the heat exchanger.
4. For S.I.T. Burners, rotate the burner until the flame ports face forward and withdraw it from the heat exchanger, right hand end first.
5. The burner can be brushed clean or replaced, if necessary.
6. Reassemble in reverse order, fitting new cover plate gasket if necessary.

9. FLAME VIEWING WINDOW

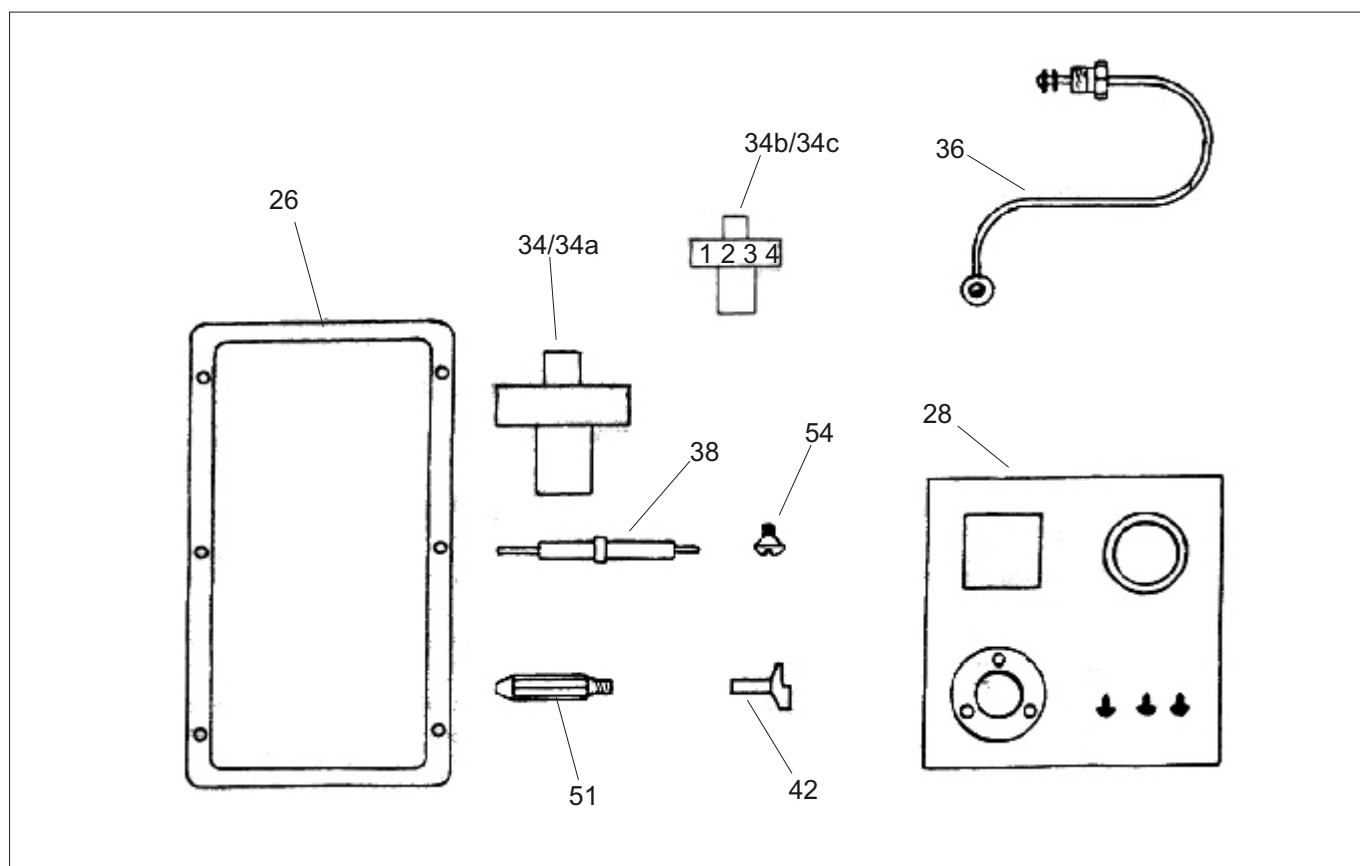
- 1 .Remove three screws securing the frame to heat exchanger. Take off the frame gaskets and (Broken)glass
2. Refit new window kit if required.

10. CASE

The perforated panel and control panel can be replaced by removing the requisite screws.

Short list of Parts

Key No.	G.C.No.	Description	No. Off	RW Part No.
36	393815	Thermocouple	1	822183
38	393878	Electrode	1	820363
--	-----	Electrode Lead	1	988866
28	203738	Glass panel kit	1	999054
34	204132	Control Knob (Brown model)	1	995674
34a	204156	Control Knob (Pastel model)	1	995169
54	400004	PTP sealing screw	1	999542
51	203910	Injector RW N16	1	997629
42	391699	Pilot Injector	1	820238
26	203749	Coverplate gasket	1	999053
34b	-----	Thermostat Knob (Brown model)	1	988943
34c	-----	Thermostat Knob (Pastel model)	1	988942



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